**Vol. 5. No. II.** **January, 1899.**

# Journal of the Amateur Photographic Society of Madras.

**Patron.**

H. E. Sir ARTHUR ELIBANK HAVELOCK, G.C.M.G., G.C.I.E.

**President.**

E. W. STONEY, Esq.

**Vice-Presidents.**

F. DUNSTERVILLE, Esq.
Surg.-Genl. C. SIBTHORPE, C.B.

**Committee.**

A. CHATTERTON, Esq.
A. E. LAWSON, Esq.
Col. J. MAITLAND, I.M.S.
C. E. PHIPPS, Esq.
A. PILKINGTON, Esq.
F. J. WILSON, Esq.

**Honorary Secretary & Treasurer.**

S. JACKSON, Esq.

CONTENTS.

| | Page. |
|---|---|
| EDITORIAL NOTES:—The Annual Meeting: The B. J. P. Annual: Cooke Photographic Lenses, &c. | 13 |
| OUR ILLUSTRATION ... ... ... ... | 15 |
| OUR HOME LETTER ... ... ... ... | 15 |
| CORRESPONDENCE ... ... ... ... ... | 16 |
| PROCEEDINGS OF THE SOCIETY ... ... | 16 |
| EXTRACTS:—Improving Defective Negatives: The Action of Certain Substances on a Photographic Dry Plate in the Dark ... ... ... | 18 |
| COMPETITIONS, &c.... ... ... ... ... | 24 |

## *EDITORIAL NOTES.*

THE annual meeting of the Society which was held on January 6th was only poorly attended, but this was perhaps natural as no question of importance was to come before it, and so many other things are going on at this season of the year that it is not easy to get people to come to a meeting of any Society. The report and statement of accounts which were presented to the meeting must be considered to be, on the whole, quite satisfactory. The average attendance at the meetings of the Society during the year was 6·2 which is not bad when we remember that one or two meetings were very poorly attended on account of rain.

AS regards the accounts, these show a small falling off in the balance to the credit of the Society, but it was pointed out at the meeting that there were in hand eight sets of illustrations for the *Journal* which had been paid for. These cost about Rs. 300, so that if due allowance is made for this, it will be found that the working of the Society for the year resulted, not in a loss, but in a small gain.

THE *British Journal Photographic Annual* for 1899 is, like its predecessors, a volume which the photographer can hardly do without. Perhaps its chief drawback is its popularity, to which it owes its enormous number of advertisements. The volume runs to 1,508 pages, which, for a volume measuring 7 inches by $4\frac{3}{4}$ is excessive, and renders it a most inconvenient volume to handle. It is, of course, a great convenience to have all these advertisements together in a fairly well-indexed volume, but really it seems as if the time had come to issue the almanac in two volumes or else to change the size of the page.

THE editor this year deals with colour photography, treating it both from the theoretical and the practical points of view. Altogether it is the most complete account we have seen of the subject as a whole, and we can confidently recommend its perusal to those who wish to gain a clear idea of what has already been done on this very interesting subject, and of what has yet to be done before the difficulties of reproducing objects in their natural colours can be overcome.

---

THE contributed articles are, as is to be expected, of somewhat unequal value, but most of them will be found worth reading and some of them are worthy of careful consideration. As usual the Almanac contains many useful tables and formulæ and there is a special section devoted to "Useful Receipts," which many will appreciate. Altogether the Almanac seems quite up to the high standard which it has set in former years.

---

THE death is announced of Dr. H. W. Vogel in the sixty-fifth year of his age. Prof. Vogel has, for many years, been one of the leading authorities on photography in Germany. He was the founder of the *Photographische Verein* in Berlin and of the *Verein zur Förderung der Photographie.* The *Photographische Mitteilungen*, of which he was till recently editor, also owed its origin to his energy and enterprise. He also founded the chair of photography in the Technical Academy at Berlin, and more recently, in 1876, the chair of spectrum analysis, and in 1877 that for the study of color and illumination in the Royal Technical High School at Berlin. We are indebted for these particulars to the memoir (written before his death) in Liesegang's *Photographischer Almanach*, but unlike one of the leading photographic journals at home, we gladly acknowledge the source of our information and do not confuse the word *Lehrstuhl* with the word *Schule!*

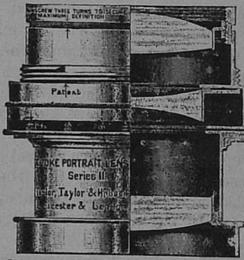
Perhaps the photographic advance with which Vogel's name will be most permanently associated will be that of orthochromatic photography in the introduction of which he took a leading part.

---

AMONGST the extracts wil' be fonnd a farther paper by Dr. Russe'. on what we have ·rmerly called pseudo-photographic action. This paper was read before the Royal Photographic Society on Nov. 22. We have also reprinted the report of the discussion that took place after the reading of the paper as it added some points of considerable interest. The subject is one which no photographer can afford to overlook.

---

MESSRS. TAYLOR, TAYLOR & HOBSON have brought out a new series of Cooke lenses specially adapted for portraiture. The lenses work at F/4·5 and are designed more especially for the use of professional photographers.



At this aperture they give either that needle-like definition which is one characteristic of all Cooke lenses; or by means of a simple adjustment, spherical aberration may be introduced evenly over the plate, so as to give the less sharp definition which many photographers prefer. The adjustment is made simply by changing the distance of the back lens from the other lenses. The maximum of fine definition is obtained when the back lens is unscrewed exactly three turns.

---

WE have also received from the same makers a specimen of a small circular level for use with cameras. The spirit chamber of the level is made in one piece by squeezing from a flat aluminium sheet. The connection between this chamber and the glass is made of such a form that any expansion of the metal is compensated and the joint is not opened. Leakage is further prevented by an elastic ring which is compressed into the angular space of the joint. The chamber is forced into a jacket till it comes in contact with the glass and the rim of this jacket guards the glass from injury. The level is exceedingly neat in appearence and the bright aluminium inside makes it very easy

to use. If in use it proves as satisfactory as one may reasonably except that it will from the excellence of the design and construction, it will be most useful in India where the ordinary circular level is very apt to leak and become useless. The retail price is only one shilling.

SIR J. Benjamin Stone recently delivered an illustrated lecture on "A National Photographic Record" in which he proposed a scheme for preserving a photographic record of current events. He called attention to the many buildings and other objects of great historical interest which had been destroyed by fire or by other accidents of which no absolutely trustworthy pictures remained, and urged that the collection of photographic records of such objects and scenes of interest throughout the British Isles was an imperative duty. It had been arranged that the records should be deposited in the British Museum, where they would be safely stored and be accessible to the public under proper regulations. Such a collection would not only possess great interest for the public, but would also be invaluable to the historian, as there were in many parts of the country customs, habits and observances of which no pictorial representation existed, and if these were photographed they would form most important material for, and it might be, throw curious sidelights upon, the social history of the people. Then, too, there were buildings, rooms, and other places of high historical and literary interet and importance, and the public ought not to hesitate to adopt any means to secure permanent photographic records of these, even to the extent of setting up a Government department charged with the duty.

## OUR ILLUSTRATION.

OUR illustration this month is by Mr. F. Dunsterville, who supplies the following note upon it:—

The picture represents the left hand shrine in the centre of the court-yard of Tej Pal's Jain Temple at Dilwara, Mount Abu, Rajputana: it was built about the year 1,200 A.D.

The carved pillars are cut from solid blocks of marble said to have been brought from Jeypore, a distance of some 300 miles. It is difficult to understand how these huge blocks could have been carried such a distance across country and then dragged up the side of a hill some 4,000 feet high.

The negative was taken on an Edwards' Special Landscape plate—backed—speed about H & D 50: the plate was exposed for 6 minutes from 2-30 P.M. on the 20th December 1897,—stop of lens *f*22 (No. 32 U. S.).

## *OUR HOME LETTER.*

*21st December 1898.*

A FEW days ago someone asked us the question as to whether it is right in landscape photography to focus on the foreground or on the principal object? Our enquirer had debated the question with a friend, and they wanted to settle who was actually right. Like all who try to pin artistic matters down to rule, they are both right and both wrong. Sometimes it is necessary and desirable to focus on the foreground, in fact this is generally the case, but where an important figure or group of figures is situated in the middle distance, then the photographer would be wise in shifting his focus to that plane. In pure landscape we should say focus on the foreground almost invariably; in landscape with figures, whenever those figures are important, on the figures. Avoid, however, the error of focussing on the distance and using a small stop so often made by the merely mechanical photographer, who puts thereby the whole of the subject on to one plane, and destroys that sense of distance so necessary to the proper appreciation of a photograph. It is quite difficult enough to suppress superfluous detail, said Mr. John Warwick recently, when lecturing before the Edinburgh Photographic Society, when employing F/8 without embarrassing yourself with the square inches of irrelevant and distracting information that result from the use of a smaller aperture. In spite of this good councel, and the dictates of common sense in regard to the matter, we see dozens of prints every week which are untrue to nature, because their authors have used a small stop, and focussed on the distance.

Further experiments by different photographers with ammonium persulphate as a reducing agent have confirmed the existence of that differential action claimed for it when first introduced. For most purposes therefore potassium ferricyanide has been discarded, and the newer reagent substituted.

While on practical matters may we point out that it is possible to obtain quite a warm effect with cold bath platinum paper by developing in the ordinary way, and then exposing the print to the light for a few minutes while moist with the developer. It gradually assumes a slightly yellow tint, particularly effective in sunlight scenes, the print is then immersed in the hydrochloric acid solution in the usual manner.

We regret to record another fatal accident caused by an explosion of acetylene gas. A young man named Alfred Burlingham, of King's Lynn, was experimenting with the gas, and asking his assistant, a boy, to apply a light to the burner, the whole thing exploded, which so injured Mr. Burlingham that he expired. The boy was fortunately unhurt, but turned permanently deaf.

We regret to record the death of Mr. George Dickman, Director of the Eastman Co. Mr. Dickman was born in the United States, but travelled about, and spent several years in Japan and California. He came to England, and was elected a Director of the firm of Mabie, Todd & Bard of fountain pen fame. After occupying that position for some years he became Director of the Eastman Photographic Materials Co., in 1893.

Among new apparatus of the month may be mentioned Messrs. Taylor, Taylor & Hobson's modification of the Cooke lens adapting it for portraiture. The instruments work at F/4·5 giving a very sharp definition at this aperture. For pictorial portraiture, however, a slight adjustment may be made, and spherical aberration produced evenly all over the plate.

A Glasgow professional has invented a simple apparatus for vignetting and printing bromide papers which has the advantage of rapid action, and absolute regularity in result.

The volume of *The Practical Photographer* of the past year has just been published, and consists of some 372 pages, with a very large number of illustrations showing the best work in all branches of photography.

MATTHEW SURFACE.

## *CORRESPONDENCE.*

DEAR SIR,—I shall feel much obliged if you could kindly let me know through the Society's Journal, or place the matter before next meeting of the Society when some member may perhaps be able to explain, the cause of the following defect.

A batch of Paget plates was developed with a metol and hydrokinone developer made of

| | | |
|---|---|---|
| **A**— | Hydrokinone ... ... | 200 gr. |
| | Metol ... ... ... | 20 gr. |
| | Sulphite of soda ... ... | 3 oz. |
| | Citric acid ... ... ... | 30 gr. |
| | Water ... ... ... | 20 oz. |
| **B**— | Carbonate of soda ... ... | 2 oz. |
| | Soda hydrate ... ... | 60 gr. |
| | Water ... ... ... | 20 oz. |

This developer has been regularly used with Paget plates and hitherto with excellent results. In the present case equal parts of A and B were taken, and the plates were developed and gave good negatives which were fixed in the ordinary way: the hypo was not, however, accurately weighed. When fixed the negatives seemed all right. They were then subjected to a prolonged washing, excessive rather than insufficient and finally set to dry. When dry, the dark parts of the negatives—high lights,— were found to have bleached, so that they could not be distinguished as such, and had exactly the appearance of the light parts (shadows). At the same time a faint reticulation has appeared all over the plates.

No alum was used, and the water in the developer and that used for washing was rain water. The temperature was that which we have had in the last two months or so, but I cannot give the precise temperature at the time of development.

I can hardly suspect that there could be anything wrong with a developer which has produced no such results in other Paget plates, and it may be that the batch of plates themselves were faulty, but I should be glad of an authoritative opinion.

MASULIPATAM,
*24th December, 1898.*

I am, Dear Sir,
Yours faithfully,
ROBERT MORRIS.

The fact that the plates show reticulation seems to indicate that the gelatine had begun to decompose and probably the prolonged washing intensified the mischief.—ED.

## *PROCEEDINGS OF THE SOCIETY.*

### Annual General Meeting, held at the Masonic Hall, Mount Road.

### *Friday, January 6th, 1899.*

Mr. C. Michie Smith, President, *in the chair.*

The Honorary Secretary read the Committee's Report and Financial statements :—

*Annual Report for 1898.*

The Committee begs to present the Annual Report upon the work of the Society for the past year, the eleventh of its existence.

The numerical strength of the Society is shown by the following statement :—

| | |
|---|---|
| Number of members, 1st January 1898 ... | 96 |
| " " 31st December " ... | 84 |
| Loss | 12 |
| New members elected during the year ... | 5 |
| Loss ... ... ... ... | 12 |
| Total | 17 |
| Resigned ... ... ... ... | 15 |
| Deaths ... ... ... ... | 2 |
| Total | 17 |

The balance to the Society's credit at the close of the year is Rs. 1,031-7-5 against Rs. 1,201-9-5 at the close of last year.

The usual monthly meetings have been held during the whole of the year, the average attendance of members being 6·2.

The following papers and demonstrations have been given :—*Ortol,*—Mr. F. Dunsterville; *Bromide Printing,*—Mr. F. Dunsterville; *Joly's Process of Colour*

*Photography,*—Mr. C. Michie Smith; *Photographs of the recent Eclipse,*—Mr. C. Michie Smith.

One general discussion—*Shutters*—was held.

At the meetings several interesting and novel items have been contributed by Mr. F. Dunsterville and Mr. C. Michie Smith, and to these members special thanks are due for the trouble and interest they have taken in keeping members up to date with recent inventions and processes.

The Society's Journal continued to occupy a prominent position in the Society's affairs under the able Editorship of Mrs. Leet Palk and of Mr. C. Michie Smith, who undertook the arduous duties attached to this position from Mrs. Leet Palk who left Madras for England in July. It is regretable that the Editor has still to complain of the meagre contributions from members of the Society.

The following original papers have appeared during the year in the columns of the Journal—

| | |
|---|---|
| How I saw the Eclipse ... ... | C. S. M. |
| Clouds ... ... ... | C. M. S. |
| Diary and Confessions of a Duffer. | C. S. M. |
| P. O. P. and the Hot Weather ... | T. P. S. N. |
| An Interesting Story ... | The Elaya Raja of Travancore. |
| The Irawaddy in Flood ... | Mrs. McNair. |

The Home letters by Matthew Surface are still a feature of the journal.

Owing to delay in getting out illustrations from home several numbers of this year's Journal have been sent out without illustrations.

During the year the usual inevitable changes amongst the officers of the Society have occurred.

The change in Editorship of the Journal has already been referred to. In addition to this the following members of the Committee resigned owing to their leaving India—Mrs. Palk, Mrs. Bedford, and Mr. R. Ll. Jones, their places being filled by Messrs. C. E. Phipps, A. Pilkington, and E. W. Stoney.

The long felt want of a fixed local habitation for the Society has at length been met by the kindness of the Government of Madras which, at the suggestion of Mr. E. Thurston, has put at its disposal the Old Museum Theatre and a dark room near it. These rooms will be shared with the recently resuscitated Madras Fine Arts Society, and it is hoped that between that Society and our own there will in time be an intimate connection.

Colonel Maitland proposed and Mr. E. W. Stoney seconded—

That the report and accounts be adopted. The proposal was carried unanimously.

### Election of Officers.

The following officers were unanimously elected for the ensuing year:—

*Patron.*

H. E. Sir Arthur Elibank Havelock, G.C.M.G., G.C.I.E.

| *President.* | *Vice-Presidents.* |
|---|---|
| E. W. Stoney, Esq. | F. Dunsterville, Esq. |
| | Surg-Genl. C. Sibthorpe, C.B. |

*Committee.*

| | |
|---|---|
| A. Chatterton, Esq. | C. E. Phipps, Esq. |
| A. E. Lawson, Esq. | A. Pilkington, Esq. |
| Col. J. Maitland, I.M.S. | F. J. Wilson, Esq. |

*Hon. Secy. & Treasurer.*

S. Jackson, Esq.

### New Member.

Mr. H. H. Osborne, proposed by Mr. J. Carey, seconded by Mr. H. M. Leslie, was unanimously elected a member of the Society.

### Next Meeting.

The next meeting will be held on Friday, February 3rd, when members are requested to bring any thing of interest.

---

Picture Subject for February,

"Flowers."

## STATEMENT OF ACCOUNTS FOR THE YEAR 1898.

| 1898. | | RECEIPTS. | RS. | A. | P. | 1898 | | DISBURSEMENTS. | RS. | A. | A. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jany. | 1 | To Balance as per last statement ... | 1,201 | 9 | 5 | Decr. | 31 | By Printing, postage and petties ... | 85 | 8 | 0 |
| Decr. | 31 | ,, Entrance fees and subscriptions. | 783 | 5 | 4 | | | ,, Rent and Establishment ... | 31 | 0 | 0 |
| | | | | | | | | ,, Journal as per statement ... | 750 | 11 | 11 |
| | | | | | | | | ,, Sundry (subscription to Royal Photographic Society) ... | 15 | 15 | 5 |
| | | | | | | | | ,, Half-yearly competition charges | 60 | 0 | 0 |
| | | | | | | | | ,, Sundry apparatus and materials | 10 | 4 | 0 |
| | | | | | | | | ,, Balance ... ... ... ... | 1,031 | 7 | 5 |
| | | Total Rs. ... | 1,984 | 14 | 9 | | | Total Rs. ... | 1,984 | 14 | 9 |

To Balance Rs. 1,031-7-5

Madras, 6th January 1899.

*Examined and found correct.*

A. V. PYMAN, *Honorary Auditor.*

SAMUEL JACKSON, *Honorary Treasurer.*

## Statement of Journal Accounts for the year ended 31st December 1898.

| *RECEIPTS.* | | RS. | A. | P. |
|---|---|---|---|---|
| To Subscriptions to Journal ... ... ... | | 27 | 8 | 0 |
| ,, Amounts received for Advertisements ... ... ... | Rs. 560-15-4 | | | |
| ,, Less Commission paid to Graves, Cookson & Co., on above .. | ,, 140-3-10 | | | |
| | | 420 | 11 | 6 |
| ,, Balance ... ... ... ... ... ... | | 750 | 11 | 11 |
| | Total Rs. ... | 1,198 | 15 | 5 |

| *DISBURSEMENTS.* | RS. | A. | P. |
|---|---|---|---|
| By Messrs. Graves, Cookson & Co.'s Bills for printing and circulating Journals ... ... | 629 | 13 | 0 |
| ,, Preparation and reproduction of pictures ... | 569 | 2 | 5 |
| Total Rs. ... | 1,198 | 15 | 5 |

By Balance Rs. 750-11-11.

MADRAS, 6th *January* 1899.

*Examined and found correct.*

A. V. PYMAN, *Honorary Auditor.*

SAMUEL JACKSON, *Honorary Treasurer.*

## *EXTRACTS.*

### *Improving Defective Negatives.*

BY OSBORN THORNBERY.

*(Continued from page 6).*

#### 2.—HARSHNESS.

HARSHNESS of negatives is another defect which gives the photographer a lot of trouble, and is usually caused by under-exposure, and consists of dense high lights, clear shadows, and very little half-tones. Negatives that are harsh give prints that are very black and white, and are usually known as the chalk and soot process. These negatives may be modified by a great number of methods, so as to give more pleasing and less brilliant results. Harsh negatives may be divided into two classes:—General harshness (that is, all over the negative), and local harshness (such as the whole of one side of an interior being dense and the other side thin and void of detail). One of the best methods of improving negatives of the former class is that recommended by Mr. T. N. Armstrong. The negative to be modified by his method must first be bound. This is done by placing a clean glass against the film and, binding the edges together by means of lantern slide binding-strips. When set, the glasses should be carefully cleaned, so as to remove any finger marks or dirt. Then flow over the glass side of the negative a little gelatine chloride print-out emulsion. The negative should then be laid flat in a dark place, free from dust, to dry. When dry, place in the ordinary printing frame, with the glass side out, and the P. O. emulsion against the back of the frame, close the spring of the frame, and clean the glass. Then put in a brilliant light to print. This should be carried on till it is judged to be about the depth of a finished P.O.P. print. All that remains to be done now is to fix it. This may be done by going over the emulsion several times with a flat camel-hair brush dipped in a strong solution of hypo. When it is judged to have been fixed enough, it should be quickly swilled under the tap, and brushed over with alum solution, again swilled, and placed to dry. Care should be taken that none of the above solutions are allowed to go through the binding and touch the film. The negative should now be unbound and placed in the frame, the original film side in. On the glass side of the negative will be found a positive image. If the light is allowed to pass through this while printing, it will considerably harmonise the result.

Another method, not so complicated as the above, but will give equally good results:—Well wash the negative to be treated in water, and then place in a solution of—

| | | |
|---|---|---|
| Bromide of potassium ... ... ... ... ... | 1 | drm. |
| Bichromate of potash ... ... ... ... ... | 30 | gr. |
| Water ... ... ... ... ... ... ... | 6 | oz. |

It should be left in the solution till it is bleached right through to the glass, wash, and redevelop with hydroquinone developer. Any good formula suitable for developing plates will do, but the following is recommended:—

| | | |
|---|---|---|
| A.—Hydroquinone ... ... ... ... ... | 1 | drm. |
| Sulphite of soda ... ... ... ... ... | 4 | ,, |
| Acetic acid ... ... ... ... ... | $1\frac{1}{2}$ | ,, |
| Water ... ... ... ... ... | 5 | oz. |
| B.—Carbonate of potassium ... ... ... ... | 2 | drm. |
| Water ... ... ... ... ... ... | $2\frac{1}{2}$ | oz. |

The development should be carried on till the details in the shadows begin to appear. By holding it up to transmitted light, the results can easily be judged. When the high lights and shadows harmonise, the negative should be taken out, washed, and placed in an ordinary fixing bath for negatives. By this method either a soft or plucky negative may be obtained. Another formula for harmonising negatives is:—

| | | |
|---|---|---|
| Potassium bichromate ... ... ... ... ... | 30 | gr. |
| Alum ... ... ... ... ... ... ... | 150 | ,, |
| Hydrochloric acid ... ... ... ... ... | 2 | drm. |
| Water ... ... ... ... ... ... ... | 8 | oz. |

Negatives placed in this solution require the same treatment and development as detailed above.

Negatives may also be stained so as to harmonise the result. The only objection to this method is that the negatives take longer to print. The negative requiring treatment must first be placed in a solution of—

| | | |
|---|---|---|
| Bichromate of potassium ... ... ... ... | 2 | drm. |
| Water ... ... ... ... ... ... | 1 | oz. |

for five minutes, after which it should be taken out and dried in the dark. When dry, it should be placed, face down, on a piece of black cloth, and exposed to strong daylight for ten minutes, after which it should be well washed. The light has now influenced the high lights in such a way that they will not soak up any colour, and the

half-tones and shadows will soak up in proportion. The negative must now be placed in a weak aqueous solution of some pigment—blue or green, or a mixture of both. It will then absorb the colour in proportion to the silver reduced in the film. If too much colour has been absorbed, it can easily be reduced by carefully washing under the tap. Another very good method, which will answer quite as well as the above, but it is rather tedious, is to coat the back of the negative with matt varnish, or to cover it with a sheet of tracing paper, and with a stump and some Conte chalk, go over the shadows—that is, the thin parts; black lead will do quite as well as the chalk.

Tissue-paper will also do in the place of tracing-paper, but the high lights must be gone over afterwards with a brush dipped in vaseline, so as to render them transparent. Negatives that are dense one side and thin the other may be remedied in printing by stretching across the printing frame a piece of tissue paper, covering only the side that is thin. Negatives sometimes have nice clouds in them, but they will not print out, because of the density of the sky. These clouds may be obtained in the print by covering up the lower portion of the negative with a piece of cardboard till the clouds are a nice depth, then remove the cardboard, and allow the lower portion to print. If a negative gives too brilliant a print, softer prints may be obtained from it by printing on Ilford Special P.O.P., or by using ordinary P.O.P.; but before printing, expose it to the light till slightly tinted. This will, to a considerable extent, get rid of the chalkiness in the print.

### 3.—DENSE NEGATIVES.

When a negative is too dense (which is usually caused by overdeveloping or using too great a quantity of pyro or other density giver in the developer) it must be reduced by dissolving away a portion of the silver which forms the image; this may be done by what is known as reducers. There are several good formulæ for the reduction of this class of negative, but for general use and being easy to manipulate, Farmer's is the best to use. The negative should be well soaked in water so as to be sure of even reduction.

*Farmer's Ferricyanide Solution.*

| | |
|---|---|
| Potassium ferricyanide ... ... ... ... ... | 1 oz. |
| Water ... ... ... ... ... ... ... | 8 „ |

This solution should be kept in the dark, as the light has a deteriorating effect upon it. A fresh solution of hyposulphite of soda, about half the strength of an ordinary fixing bath for plates, and to this add eight drops of the ferricyanide solution and well stir, then place the plate in and well rock. If this solution does not reduce much, a few drops more should be added, of course taking out the negative to do it, otherwise uneven reduction will result. Care must be taken that not too much ferricyanide is used, or the reducing action will get out of control and be carried too far. When about the right depth is reached the negative should be taken out and rapidly and thoroughly washed, as the action will continue as long as there is any trace of the reducer in the film. Belitzki's is another reducer, but contains more ingredients than Farmer's and is not quite so popular, but is equally effective. It is made up as follows:—

| | |
|---|---|
| Ferric potassium oxalate ... ... ... ... | 1 oz. |
| Sodium sulphite ... ... ... ... ... | 1 „ |
| Oxalic acid ... ... ... ... ... | ¼ „ |
| Solution hyposulphite of soda .. ... ... | 5 „ |
| Water ... ... ... ... ... ... ... | 20 „ |

The above ingredients must be dissolved in water in the order given. This solution must also be kept in the dark. When dissolved it is ready for use. The negative must soak in water first and is then placed in the above solution, which should be kept in motion by rocking so as to ensure even action. When the desired result is obtained the negative may be removed and well washed. Two other formulæ for reducing, which are used in the same way as the foregoing, are:—

The cyanide bath, which is a very slow acting reducer, and the iron bath. The cyanide solution is made up as follows:—

| | |
|---|---|
| Cyanide of potassium ... ... ... ... | 20 gr. |
| Iodide of potassium ... ... ... ... ... | 10 „ |
| Bichloride of mercury ... ... ... ... | 10 „ |
| Water ... ... ... ... ... ... | 10 oz. |

The advantage of this bath is the easiness of its control, as it acts very slowly. After reducing, the negative must be well washed for two hours.

And the iron bath:

| | |
|---|---|
| Citric acid ... ... ... ... ... ... | 60 gr. |
| Perchloride of iron ... ... ... ... ... | 30 „ |
| Water ... ... ... ... ... ... ... | 1 pint. |

Well wash the negative after using above. There are two methods of locally reducing a negative: Chemical and mechanical. The former is most usually resorted to, and gives the best results if carefully carried out. The best formula to use is the ferricyanide solution given above. This should not be used so strong as for reducing the whole of a negative. The negative requiring reduction should be held in the left hand, with a sheet of paper underneath to throw up the light; now place a camel hair brush in the hypo-ferricyanide solution, and carefully go over the edge of the dense spot; then paint the middle, taking care to cover all over. This should be done over and over again till reduced enough. Do not fill the brush too full of the solution, or it will run and reduce other parts. To prevent sharp lines appearing the brush must be dipped in water and painted round the edges occasionally so as to blend them together. When reduction has been carried far enough take the negative out and well wash. Another method of local reduction is the methylated spirit and chamois leather process. This is a mechanical process, and reduction takes place by evenly wearing away the film by friction. Take a piece of soft chamois leather and cover the rounded top of a penholder and dip in the methylated spirit and carefully and gently rub the portion to be reduced, till the result is satisfactory. It requires a lot of patience, and care must be taken that holes are not rubbed in the soft gelatine. There are many more methods of reducing the density of a negative, but the above will be found to be most practical, and if care is taken in their manipulation, negatives cannot fail to be improved by their use.—*The Amateur Photographer.*

## *The Action of Certain Substances on a Photographic Dry Plate in the Dark.*

By W. J. Russell, Ph.D., F.R.S., F.I.C., F.C.S.

The subject I have to speak to you about this evening has already so widely increased that I must limit myself strictly to the subject stated in the title of my communication. *On the action of certain substances on a photographic*

*dry plate in the dark.* Becquerel showed some years ago that the metal uranium and some of its salts were capable of acting upon a photographic plate in the dark, and it was when repeating some of his experiments that I was led to the facts which I propose to bring before you. Becquerel's experiments seem to me still more wonderful, and they have developed so far that I believe I am correct in saying that *all* uranium salts have this power. I am still making experiments with them, and there are two points which in passing I should like to mention to you. One is, that not only the solid uranium salts, but also the salts in solution, have this same power. On the 1st October, 1896, I took three of the uranium salts, in duplicate—the yellow oxide, the nitrate, and the chloride in slightly acid aqueous solution; one set of three specimens was kept in the dark and the other in the light. I have from time to time examined those salts photographically, the last time on the 6th October, 1898, when those which had been kept in the dark were just as active to a photographic plate as they were two years ago, and quite as active as those which had been kept in the light. It is not obvious, I think, where this force comes from, but it certainly does exist and continues to exist, which is a very remarkable fact. Thorium, it is said, acts in the same way, only still more energetically, and its action—like that of uranium—passes through glass; none of the actions which I have to speak of to-night will pass through glass, hence there is a marked and complete distinction between the action of uranium and the actions now to be considered.

I do not think I can do better than begin with printer's ink. I would say at once that the results I have to show you have all been produced either by contact with, or at a distance from, different photographic plates. As far as I know, any plate will act in this way, but by far the best are the most sensitive plates; most of the slides are made upon the Ilford Special Rapid plates, but I think for this purpose one plate is as good as another. Further, none of the slides have been tampered with in any way, by intensification or otherwise; they were developed in the ordinary way with pyro and soda, and none were left in the developing solution longer than six minutes, generally only three or four minutes. Again, I would say that as a general rule the action is influenced to a very great extent by temperature. Many of my experiments were made at ordinary temperatures, about 60° F., a good many others at about 131° F. (55° C.), and a few at a higher temperature—about 100° C. I find that plates may be exposed at a temperature of about 55° C. for from twelve to eighteen hours without appreciable alteration; at a higher temperature ten to fifteen minutes.

The whole subject is still very much in the experimental phase, and consequently I have a great deal to show you and comparatively little to say. First then, with regard to printer's ink. Most ordinary black printing, laid on a photographic plate and kept in contact, at ordinary temperature, for, say, a week, will give a picture on treating the plate as if it had been exposed to light, but the activity varies considerably. As one would naturally expect, old inks are much more sluggish than new ones, and the activity of new inks varies considerably. I will show you, first, a reproduction of some printing from the *Magazine of Art*, the printed surface having been in contact with the plate at ordinary temperature for a week; in the next slide, the subject being similar, you will notice, besides the picture proper, a sketch of a face and some inverted printing which was on the reverse side of the paper, the exposure in this case having been between two and three weeks at ordinary temperature; the third was done in five hours at 55° C., and it is beautifully clear and perfectly sharp. Now I want to show that this action of the printing ink varies considerably, and for this purpose I have a slide made from pieces of three daily papers of the same date, the *Standard*, the *Westminster Gazette*, and the *Evening News*. Further, I want to demonstrate that contact of the paper and the plate is not necessary. It is not difficult to imagine that the contact action should occur, but I believe the explanation is not quite so simple as one might think; but, at all events, the whole phase of the thing is altered if I demonstrate to you that this action can take place without contact, and I do this by means of the next two slides. In the first, made with an intervening space of 1 m.m., the action has clearly taken place; and in the second, at 2 m.m., there is the same effect, but fading out and less sharp, as would be expected. The next slide shows the result at 1 inch distance; in this case some printer's ink was put at the bottom of a piece of tubing 1 inch deep, a sensitive plate was put on the top of the tube, and the whole was left in the dark for some weeks.

What is it that really does the work in the printer's ink? It was easy to guess that the active substance must be the drying oil. Of course, printer's ink is a very indefinite compound, it varies very much, and, as I have shown you, different specimens will vary considerably in their activity. I should like to show that drying oil will act in the same way. I took a small glass dish, as used by microscopists, poured a little drying oil into it, put a sensitive plate on the top, and left it in absolute darkness, and the result shows that there is a strong effect, demonstrating the fact that the oil has the same action as the printer's ink. If, instead of drying oil, I take ordinary linseed oil, I get very nearly the same result. Olive oil is much less active, cod liver oil is tolerably active and paraffin oil has practically no activity at all; speaking generally, animal and mineral oils are not active, while vegetable oils are active. One word of warning: if you get specimens of oils from different colourmen, as I did, you will find that even the purified oils—such as the linseed oils, the drying oils, and the olive oils—will vary considerably amongst themselves; consequently, to obtain a picture from printer's ink you have to vary your exposure considerably according to the composition and state of the ink, and further according to the temperature at which you are working. *Punch*, for instance, is printed with an ink which prints very well and rapidly, so that at ordinary temperature, with contact, you can get a good picture in two weeks, while at 55° C., you can get a picture in two hours, and at 100° in ten minutes. I mention this case to show how curiously and strongly the alteration of the temperature affects the action. The exposures necessary with other publications vary considerably. If the printing be heated for some length of time the action ceases altogether. The slide I now show you from *The Times*, gives another instance of the printing through the paper of the lettering on the side not in contact with the plate, and the next one also shows that red printing ink has had the same effect as black, and that the blue ink has not printed at all. Further, the word "Beecham's" appears on the slide, although there is no trace of it in the original, a fact which at first puzzled me very much; but upon turning to *Chambers' Journal*, from which the slip had been cut, I found, as I expected, that an advertisement relating to "Beecham's" was

printed on the opposite page, and that an emanation from it had been sufficient to enable the word to be photographed from the page upon which it was not visible.

There is another point with regard to printing ink which is interesting, namely, how long this activity lasts? I should like to show you another slide in which I have taken printing from an old book called *Exercises of Piety*, printed in 1805; it was exposed for forty-four hours at a temperature of 55° C., and, although it is not as bright as the others, I think you will admit that it is quite distinct. Another example was made by exposing a book, called *Mercury the Messenger*, printed in 1641, on an Ilford film for twenty-one hours at 55° C., and the printing is very distinctly photographed even after that length of time.

So much, then, for printer's ink. I was making some experiments with copal varnish, with another object, when I found that it was an exceedingly active substance, having the same effect as printer's ink upon a photographic, plate. Some copal varnish was put into a dish, on the top of which was placed a screen with five holes in it through which the emanations from the varnish could pass to a dry plate; the result shows quite clearly the strong action which took place, which is also evident from the next slide, in which case the varnish was smeared on a piece of glass. In copal varnish the active substance is turpentine, from which similar results may be obtained in the same way, the pictures in these instances having been made in three days at ordinary temperature. Turpentine, as you are aware, belongs to a long series of bodies known as the terpenes, and all these terpenes are exceedingly active substances. Through the kindness of a friend I was enabled to obtain some pure specimens, and they are without exception very active, although they vary somewhat. Di-pentine gave a very dark action in four-and a-half hours, and another sample with two days' exposure caused complete reversal. It is exceedingly important to note that these terpenes—which are hydrocarbons—are all active substances; I will tell you presently why I dwell upon that. Of the essential oils, I think I may say that all those that are met with in commerce are active bodies, all have strong smell, and they all contain terpenes, and that is no doubt the cause of their activity. Nearly all these bodies which have a strong odour are strongly active substances, but at the same time I must say that I do not think for a moment that I am photographing smells, for there are many bodies which have a smell and which are not active, such as nitrobenzine, benzine, chloroform, acetic ether, and thymol. But you see the coincidence—the essential oils, the great smelling bodies, are all nearly related, and all contain one or other of the terpenes, and it is I think for this reason that they are so active.

Again, with regard to alcohol and ether, when they are pure they are not active, and I can therefore give you a picture of the purification of ether. If I take ordinary ether and put it in a dish with a photographic plate over it, I find that it is very active; if I treat it with bichromate of potash and sulphuric acid, thus purifying it to a certain extent, it becomes very much less active; and when the purifying process is carried farther still there is only just the faintest shadow on the plate, which shows that so far as certain substances are concerned the ether has been purified.

Wood is a tolerably active body. The first photograph I show you is from a piece of deal, with ten days' exposure at ordinary temperature; and the next is from a section of spruce wood, five hours at 55° C. A very interesting picture is one of a piece of an old mahogany camera, between thirty and forty years old, which had been kept in a dry place during the whole of that time. The next is from a piece of an oak box, at least 100 years old. This action of the wood can, to a certain extent, be intensified, as it were, by putting the wood over drying oil. A section of silver birch, tried in the ordinary way, gave no result, but after being placed over drying-oil for twenty hours it gave a picture with three hours' exposure at 55° C. I show you also a picture of a section of oak which had been over drying-oil for forty-eight hours, the photograph being the result of three hours' exposure at 55° C. Charred wood is also very active; ordinary charcoal, too, gives clear indications of its activity, but if strongly heated in a crucible it becomes inactive. Cork is a curious substance. The flat surface produces no effect, but all the little holes in the cork seems as if they were filled up with something or other which is active; if I bore holes right through there is no action at all, but there is some action if I only bore them partially through.

Strawboard is another substance to which I would call attention. It is fairly active, but the special interest about it is that if it is dried for half-an-hour, and then allowed to act under a receiver, with chloride of calcium to keep it perfectly dry, the action is almost gone; if, on the contrary, you moisten it, and leave it to act over water, you get a picture. I mention this for the purpose of demonstrating that in this case, and possibly in others, the presence of moisture produces an important effect. White sugar, sulphur, and arsenic are inactive bodies.

I come now to a subject which is very interesting, and somewhat more complicated, and that is the power which this action has of passing through different media. I would at once say that bodies such as glass, selenite, fluorspar, and mica are absolutely opaque, and will allow no trace of action to pass. Writing paper is an obviously porous substance; if copal varnish for instance is placed behind a screen of writing paper, the action goes through the paper, of which it gives a picture—showing the structure and watermark. But take a body which is not so obviously porous. Sheets of gelatine, for instance, seem tolerably homogeneous; but you see, from the slide, that the action proceeding from drying-oil has penetrated the gelatine and produced a picture through holes cut in a screen; the gelatine in that case was about $\frac{1}{1000}$th of an inch in thickness, and the next slide shows the same effect through two thickness. The action also goes through celluloid, which is certainly very curious, and through gutta-percha tissue. Again, I painted a plate with gum arabic, and the coating when dry split in all directions; you see the action took place through all the cracks, while the unbroken surfaces of the gum were opaque. I wrote on a piece of paper with Stephens' blue black writing ink, which proved perfectly opaque to the action, the letters appearing white on the black ground caused by the passage of the action through the plain parts of the paper. These, then, are some of the leading facts with regard to the action of organic substances upon a photographic plate in absolute darkness.

I now pass on to another class of actions, those of metals. Zinc is one of the first metals that I experimented with, and one of the most active. If you take a piece of zinc that has been exposed to the air and dulled, and try that, you will find that it is perfectly inactive. If it has a perfectly smooth and bright surface it is but sl[illegible] active; but if you rub it with sand-paper until [illegible]

bright, but rough, it is exceedingly active. This is illustrated by an example made by a piece of perforated zinc, and another from a piece upon which a spiral had been cut, the spiral being shown in the photograph as inactive by reason either of its distance or its convexity; a third specimen of zinc shows where the metal had been cut and made bright by an emery wheel. This activity is a property which only belongs to comparatively few of the metals. I think magnesium is about the most active, and speaking roughly, the sequence of other would be something like this: cadmium, zinc, nickel, aluminium, lead, bismuth, tin, cobalt, antimony. There are many others which are slightly active, but they seem considerably less so than those I have mentioned. I show you examples of some of the metals. Certain of the alloys are active, among them fusible metal, pewter, aluminium, bronze (slightly), and brass; with regard to the last named, the percentage of zinc present has considerable effect upon its activity, and I am hoping that we may in this way gain some further knowledge with regard to the constitution of brass, a matter which is at present much disputed.

In the first paper I published upon this subject I said that mercury was an exceedingly active metal, and for this I must call *peccavi*. Mercury is perfectly inactive and does not produce any effect whatever, but if there is a trace of zinc in the mercury it becomes exceedingly active and in the first instance I was experimenting with what I believed to be pure mercury, but in which there was really a trace of zinc. This is typified to a certain extent by the intense blackness of the photograph of which I show you a slide, and which was produced by an amalgam containing only $\frac{1}{300}$th per cent. of zinc. An amalgam of zinc will give a dense black picture in two minutes or less, at 100°, or in about a quarter of an hour at ordinary temperature. Working on the same principle as I mentioned with regard to the purification of ether, we can picture the purification of mercury.

All the metals to which I have referred act in the same kind of way, and I have now merely to show you that contact, again, is not necessary to produce this action. Here is a picture of the scratches made by sand-paper upon zinc, a screen 1 m.m. thick having been interposed between the zinc and the photographic plate, demonstrating that the action takes place at a distance, and that under those circumstances there is a loss of sharpness; with a screen 4 m.m. in thickness all the picture disappeared, and only general action was visible, and when a piece of tube, one inch deep, was interposed, the same thing happened. Pictures of certain opaque substances may be obtained by means of zinc; for instance, here is a piece of lace which was laid on a piece of zinc, with a dry plate on top, and the next slide represents a skeleton leaf and a £5 note photographed in the same way. Notice in the latter, and in some slides from writing paper, that the water-marks and general structure are very clearly shown. Among media which are apparently not porous, I show slides made through gelatine of various degrees of thickness, celluloid, and gutta-percha tissues (two weeks' exposure), tracing paper, and gold-beater's skin. The action does not pass through paraffin or gum arabic, nor through paper which has been soaked in ferrous sulphite. Other metals act in the same way as zinc in this respect.

A curious application of this action of zinc may be mentioned; we have seen that it goes through paper, but ordinary writing ink makes paper perfectly opaque, and th[illegible] writing may be copied as shown in the slide, the [illegible] Davy Faraday Laboratory," having been written on paper with Stephens' writing ink. The same words were written again first in the same way, then in red ink, and then in pencil, and you see that the red ink and the pencil were transparent. This applies also to old writing, as may be seen from the next three slides made from paper writings dated 1801 and 1810, and from a parchment deed written in 1807. In these cases the active substance is probably ferrous sulphate, but if it be so it is remarkable that complete oxidation should not have taken place in all those years, and that the writing should still be active. I do not propose to enter into the subject of the action of coloured inks, with regard to which I am still making experiments; but I show you pictures of the label of Wills' bird's eye tobacco, in which the red letters appear as well as the black, the blue letters being invisible; I also show an advertisement of the Sun Fire Office, in which reversal has occurred with the blue printing.

I have shown that a zinc surface which has been rubbed with sand-paper is most active, and that zinc which has been exposed and is dull is not active; the photograph before you was produced by stroking a zinc surface with a damp brush, and you see it has become inactive where the brush marks were made. Again, I wrote with drying oil upon a piece of zinc, allowed the oil to dry, and then exposed a plate to its action, with the result that as the drying oil is more active than the zinc, and a positive picture has been produced; the same thing occurred when the writing was done with turpentine, although the writing could not be seen upon the zinc, but in the photograph the writing is darker than the zinc although the zinc surface shows. There is, however, an intermediate stage when the zinc is not active, and we can thus get a picture direct from the zinc when it is brought in contact with a photographic plate, specimens of which I now exhibit.

One word with regard to the cause of these curious effects. I do not propose to-night to go into any discussion of these matters, because I have still a great deal to do before I am satisfied with any explanation; but I should like to say that at the present moment I cannot help thinking that peroxide of hydrogen ($H_2O_2$) is the active substance. It seemed to me very remarkable that two classes of actions—those which I have shown to be produced by organic bodies, and those produced by metals,—should be discovered at the same time, but were apparently so entirely different; if my present suggestion that peroxide of hydrogen is the active substance be correct, that, of course, accounts for it. Absolutely to demonstrate this is difficult, for water cannot be altogether excluded; a photographic plate is a sponge, and if absolutely dry would probably be absolutely inactive. The point that I would to-night emphasise is this, and it is important as a link in the chain of evidence,—that effects, precisely similar to those which I have been showing you, can be produced by $H_2O_2$. At first it certainly seemed remarkable that such very small quantities could produce such considerable effects; but if I put a dry plate over a very dilute (two per cent.) solution of peroxide of hydrogen, I get a dark picture in two minutes. To illustrate the great effect which is produced by a very small quantity of $H_2O_2$, a piece of paper was soaked in a solution containing one part to five million parts of water, and it gave a very fair picture. I show you, also, slides demonstrating the fact that the action passes through different media, such as Bristol board, celluloid, gelatine, and gutta percha, in exactly the same way as the action from zinc and drying-oil; and further that ferrous sulphate is opaque to the action of peroxide of hydrogen.

What I have said and shown you may illustrate and establish some of the principal points in this subject. I have many and more complicated deductions and extensions which I should have liked to have spoken of, had time permitted, but this is only a beginning and much remains to be done. Most of my experiments have been made at the Davy-Faraday Laboratory, and I should like to record my thanks to the managers of the Royal Institution for their kindness in allowing me to carry on my work there.

The CHAIRMAN said that after hearing Dr. Russell's extremely interesting lecture, it obviously occurred to one that camera makers would have to exercise great care in the selection of materials. With regard to earlier work in the same direction, he remarked, that when he was a student at the College of Chemistry, he and Mr. (now Sir) William Crookes, his fellow student, repeated the experiments of Becquerel, and later those of Nièpce, and made some investigation of the subject, some of his observations having been published in *The Photographic News* (March 18th, 1859) under the title "On the sensitiveness of choride of silver to obscure radiations."

Mr. W. E. DEBENHAM alluded to the importance of using, in the manufacture of dark slides, materials which would not produce photographic action, and he asked whether gunmetal fulfilled this condition or was considered likely to do so?

Mr. SEBASTIAN DAVIS asked whether Dr. Russell thought the action had any relation to the combination of the haloid salts of silver with the gelatine of the plate? He had traced some peculiar markings upon plates, accompanied by increased or diminished intensity in the effected portions, to the emanations proceeding from the leather forming the hinges of his dark slides.

Mr. A. HADDON asked whether tin had any action upon photographic plates; also whether any experiments had been made with regard to the action of zinc in a vacuum or in dry air?

Mr. J. CADETT said it might be interesting to mention that some years ago, amongst a large number of substances added to emulsions by way of experiment, he added peroxide of hydrogen, with the result that the sensitiveness of the plate was reduced, but it was perfectly clean upon development. On one occasion he had the whole of the woodwork of his plate drying room painted with copal varnish, but the plates were so badly fogged—although he did not at the time know the reason—that he had everything cleared out of the place, and all the varnished work removed.

Mr. CHAPMAN JONES remarked that the results under consideration had been previously attributed, though perhaps not by Dr. Russell himself, to the action of the vapours of the substances experimented with. This view seemed to him unreasonable, because it involved the conception that the vapours of substances that differed so extremely in their volatility as zinc and aluminium on the one hand, and turpentine on the other, produced effects of about the same order of intensity. Dr. Russell now suggested that the results were due to the vapour of peroxide of hydrogen, and that somewhat reduced the difficulty just mentioned, but he (Mr. Chapman Jones) could not bring himself to imagine any vapour passing through a practically non-porous substance, such as a film of gelatine, and emerging on the other side in such a manner as to produce a tolerably exact image of the active surface. He would like to submit to Dr. Russell the suggestion that, as all the active substances appeared susceptible to aërial oxidation by mere exposure to air, as during their vigorous oxidation (combustion) radiant energy, which affects a photographic plate, was certainly produced, whether it was not likely that a similar radiant energy was produced during the slow oxidation. The heat effect, or its equivalent, during oxidation was supposed to be the same in its total whether the oxidation was slow or rapid, and he would suggest the radiant energy affecting the plate was somewhat comparable with the heat effect. By the combustion of zinc it was certainly possible to produce the developable condition in a photographic plate in the ten-thousandth part of a second, and it seems not unlikely that an exposure of, say, six hours during the slow oxidation at ordinary temperatures, should produce a similar result. The increase of the exposure as just stated was equivalent to increasing an exposure of one second to more than six and a half years, so that an effect that was so extremely feeble as to be far beyond imagination would have time to accumulate and produce a recognisable result. The experiments with baffle plates and similar arrangements that Dr. Russell had described, might perhaps be explained by reflection as well as by the flowing of a vapour. And there was evidence of the existence of radiant energy that possessed properties differing from those to which we were so well accustomed.

Mr. SNOWDEN WARD asked whether Dr. Russell had compared the effects obtained on dry plates with those obtained by Hunt and Moser on metal plates, and whether the diminution of the effect was proportionate to the distance.

Dr. RUSSELL said he had not tried gunmetal; 30 per cent. brass was practically inactive, and iron quite inactive. He declined altogether to go into the question of the chemical reaction which took place in an emulsion; if he could prove that the action was or was not due to peroxide of hydrogen, he would be satisfied for the present, and it was with that object that he was now working. There was no doubt something in leather, which produced activity, and he had heard of many instances similar to that mentioned by Mr. Sebastian Davis. Tin was very slightly active. A pertinent question was asked as to drying the plates, but the difficulty here was that the photographic plate was a sponge, full of moisture, and if it were dried it would be insensitive. The extent of the activity was undoubtedly increased by the presence of aqueous vapour. With regard to the remarks of Mr. Chapman Jones the passage of the action through such substances as gelatine and celluloid was a very curious fact, and the character of the picture produced seemed to prove that the action was not a mere absorption on the one side and a giving out on the other. The picture was very much diminished in clearness, and the detail diffused, when the gelatine was interposed between the active substance and the plate. At present the result of his investigations was to cause him to lean upon the peroxide of hydrogen theory. Moser's experiments were very interesting, but he recognised his pictures by their power to condense different vapours—aqueous vapours, or mercury, or iodine, whereas Dr. Russell produced them by this activity on the photographic plate. He had made several experiments with regard to distance, but it was very difficult to obtain exact measurements.

A vote of thanks was passed to Dr. Russell

*Photographic Journal.*

## *COMPETITIONS.*

(Open only to Members of the Society.)

| | |
|---|---|
| FEBRUARY ... ... ... ... | *Flowers.* |
| MARCH ... ... ... ... | *River Scene.* |
| APRIL ... ... ... ... | *Goats.* |
| MAY ... ... ... ... ... | *An Interior.* |
| JUNE ... ... ... ... ... | *A Tree.* |

SUBJECT FOR SPECIAL COMPETITION IN JANUARY "*A Figure Subject.*"

## RULES.

1. *Two Special Competitions shall be held, in each year, in addition to a monthly competition.*

2. *The Committee shall select the subjects for the Special Competitions, and notice of the selected subjects shall be announced in the Society's Journal in February and in July of each year. The subject for each monthly competition shall be selected two months in advance by the members present at the monthly meeting, and shall be notified in the next issue of the Society's Journal.*

3. *Pictures, &c., competing for Prizes at the Special Competitions must reach the Secretary by the last day of January and of May, and those competing at the monthly competitions must arrive in time to be shown at the monthly meeting.*

4. *Prizes will consist of Silver and of Bronze Medals, and of Certificates of Merit.*

5. *Not more than one Silver and one Bronze Medal shall be given at each Special Competition, and one Silver and one Bronze Medal may also be given at these competitions for excellence in copying, enlarging, lantern slides, or any other special branch of photography. One Silver and one Bronze Medal shall be awarded half-yearly to the exhibitors who obtain the highest and the next highest marks respectively at the monthly competitions. The number of Certificates of Merit granted at each competition is left to the discretion of the Judges.*

6. *A member may receive only one Silver and one Bronze Medal in the special, and one Silver and one Bronze Medal in the monthly, competitions, held during the same year; but should a member who has been adjudged a medal be disqualified under this rule from receiving it, he shall be given a Special Certificate instead, marked 1st or 2nd Prize.*

7. *A Special Committee of three members shall be appointed Judges by the General Committee to carry out, subject to these Rules, all arrangements connected with the competitions.*

8. *The Special Committee shall be appointed after the Annual General Meeting in January, and shall hold office for one year, and any vacancy occurring will be filled up by the General Committee.*

9. *The Special Committee shall decide upon the merits of the pictures, &c., sent in for competition, and their decision shall be final. The system of judging the monthly exhibits shall be by awarding marks, a record of which shall be kept by the Judges, the marks being totalled and the results declared half-yearly. For this purpose, only the three highest marks awarded at each competition to each competitor shall be recorded, but not the aggregate marks gained by each for a number of exhibits.*

10. *If any member of the Special Committee is a competitor, the General Committee shall appoint a non-competing member to act as Judge at that competition instead of the competing member.*

11. *No exhibit shall compete twice, but pictures, &c., already exhibited elsewhere, may be sent in for the competitions.*

12. *Lantern slides sent in for competition shall be in sets of six, and shall be judged upon the screen.*

13. *The Special Committee shall not award any Prizes or Certificates, unless they consider the exhibits to be worthy of such distinction.*

14. *Each competing exhibit shall be the entire work of the exhibitor, and when sent in shall be accompanied by a Certificate in the annexed form:—*

> *"The (1) Arranging, (2) Exposing, (3) Developing, (4) Retouching (if any), (5) Printing and (6) Trimming and Mounting were done by me without assistance."*
>
> ______________________
>
> *Member, A. P. Socy. of Madras.*

15. *All pictures for the Special Competitions shall be mounted, and may, at the competitor's option, be framed but not glazed. Those for the monthly competitions need not be mounted, but should be trimmed.*

16. *Each competing picture should have a name or title, which should indicate the nature of the subject.*

17. *No competitor shall be allowed to send in more than six pictures to compete for any particular Prize, but the same member may compete in all branches specified in Rule 5.*

18. *The pictures gaining 1st and 2nd Prizes at the half-yearly competitions, and the best pictures sent for the monthly competitions, shall, when practicable, be reproduced in the Society's Journal.*

19. *To give up-country members an opportunity of seeing the competing pictures at the special competitions, the pictures shall be circulated to all members of the Society not residing in Madras, who apply to see them. As this arrangement can only be carried out by the cordial co-operation of the members themselves, they are expected to forward the pictures without delay to the next member, and to send one of the accompanying post-cards to the Secretary, so that by this means the progress of the pictures may be traced.*

## List of Members whose Dark Rooms are available for use by Members of the Madras Amateur Photographic Society.

T. P. S. NAGARATNAM, 47, Malayappen Street, Black Town.
E. MAENNIG, Buckingham House, Tranquebar.
J. CHOKANNA, AMILDAR, Bowringpet, Mysore State.

## *NOTICES.*

*Members of the Madras Amateur Photographic Society are permitted to use this column free of charge for two insertions of each advertisement—all subsequent insertions of the same being chargeable at 2 annas a line. When an advertisement becomes liable to this charge, it will not be inserted unless a postal order or stamps to the value of the charge are previously sent, addressed to Graves, Cookson and Co., Scottish Press, Mount Road Branch, Madras. Advertisements received up to the 5th of each month will be inserted in the next issue of the Journal; those received after this date will be held over for the subsequent issue.*

*Subscribers, and others who are not regular dealers may make use of this column for advertisements by paying at the rate of 3 annas a line.*

### *Rates of Subscription, Payable in Advance.*

| — | India, including Postage. | Europe, including Postage. |
|---|---|---|
| Twelve months ... | 5 Rupees ... | 8s. |
| Six months ... | 3 " ... | 5s. |

*N.B.—The Journal is issued on the 15th of each month, and is posted free to members of the Madras Amateur Photographic Society.*

**Entrance Fee, Rs. 5.—Annual Subscription** *for Resident Members, Rs. 15; for Up-country Members, Rs. 12. Members joining after 30th June pay Half-year's Subscription.*

**Candidates for Election**—*should be proposed by one member and seconded by another; and they will be ballotted for at the following meeting.*

**Ordinary Meetings**—*of the Society are held on the first Friday of each month at 6 p.m. and members are at liberty to introduce visitors.*

**Letters to the Editor**—*should be addressed care of Messrs. Graves, Cookson & Co., Scottish Press, Mount Road Branch, Madras.*

**Letters to the Honorary Secretary**—*should be addressed to S. Jackson, Esq., care of Messrs. Binny & Co., Madras.*

**Letters to the Honorary Treasurer and Remittances**—*should be addressed V. G. Lynn, Esq., care of Messrs. Best & Co., Madras.*

**Communications regarding the issue of the Journal**—*should be addressed to the Publishers.*